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1. A method for transforming a signal (DS) on a four-wire line which comprises discrete amplitude height values (P1, ..., Pn) for conversion into a corresponding analog signal (AS) with amplitude height values (A1, ..., An) on a two-wire line where said analog signal (AS) is intended for a data communication unit connectable to the two-wire line and where said data communication unit has a predefined capability for resolution of the amplitude of said analog signal (AS) and said method being determined by: said amplitude height values (P1, ..., Pn) of signal DS on the four-wire line are each transformed by application of a transformation (T) where said transformation is determined in such a way that the number (n) of said amplitude height values (A1, ..., An) which said communication unit can discern in said analog signal (AS) matches a presetable criterion (K).

2. A method according to claim 1, wherein said criterion (K) is a maximum number (n) of discernable amplitude height values.

3. A method according to claim 1, wherein said criterion is a preset range of said number (n).

4. (Amended) A method according to claim 1, wherein said transformation (T) is a multiplication of said amplitude height values (P1,..., Pn).

5. (Amended) A method according to claim 1, wherein said factor (V) is calculated by the determination of the constellation of said signal (DS).

6. (Amended) A method according to claim 1, wherein said factor (V) is calculated by the determination of the minimal difference (Dmin) of two amplitude height values (Ai, Aj) of said analog signal (AS) that said communication unit can discern.

7. (Amended) A method according to claim 1, wherein said signal (DS) comprises amplitude height values (P1,..., Pn) according to a predefined characteristic.

8. A method according to one of claims 4 to 7, wherein said factor V is calculated from the constellation of said signal (DS) where the amplitude height values (P1, ..., Pn) are multiplied with a predefined small factor (V0), in particular a factor for which for at least three amplitude height values (Pc, Pf, Ph) the discernable amplitude difference deviates less than 25% from the respectively previous amplitude height value.

9. A method according to claim 8, further comprising for the calculation of said factor (V) the steps of:

a) determination of the smallest amplitude height value said data communication unit can discern (Amin);

b) determination of the largest amplitude height value (Amax) for whose

corresponding universal code (UCODB) difference to the next larger amplitude height value a predefined condition is met;

c) calculation of the amplitude height difference (D) of said largest amplitude height value (Amax) and said smallest amplitude height value (Amin);

d) counting the number of amplitude height values in between the largest and the smallest amplitude height value of the constellation and reducing said number by 1;

e) calculation of the quotient (Q) of said amplitude height difference (D) and said reduced number;

f) multiplication of said predefined factor (V0) with said quotient (Q)

10. A method according to claim 9, wherein said predefined condition is "at least 4".

11. (Amended) A method according to claim 9, wherein preceding step (f) said factor (V0) is further reduced.

12. (Amended) A method according to one of claims 1 to 4, wherein said transformation is done by replacing each amplitude height value (P1,..., Pn) according to a mapping by a predefined amplitude height value.

13. A method according to claim 12, wherein the mapping is calculated by the multiplication of said amplitude height values (P1, ..., Pn) with a predefined factor (V).

14. (Amended) A method according to one of claims 1 to 4, wherein said transformed amplitude height values (P1,..., Pn) exhibit a predefined accuracy.

15. (Amended) A method according to one of claims 1 to 4, wherein said signal (DS) is an analog signal.

16. (Amended) A method according to one of claims 1 to 4, wherein said communication unit is a PCM modem and said signal (DS) originates from a digital modem.

17. A method to detect the presence of a modem connection from said signal (DS) comprising the steps of:

a) checking, whether said signal (DS) exhibits a silence period in the range of 70 to 80 ms and, if the signal amplitude matches a predefined low amplitude height value during said silence period, issuing a modem detect signal;

b) otherwise, if the silence period exceeds 80 ms, checking whether the signal following the silence period (DS) represents a predefined characteristic signal of a PCM modem and, if positive, issuing a modem detect signal.

18. A method according to claim 17, wherein a sequence of ten amplitude height values P1, ..., P10, followed by the same sequence with negated sign –P1, ..., -P10 is detected as said characteristic signal.

19. A method according to claim 18 wherein a periodic sequence of six amplitude height values comprising three constant positive values P and three constant negative values –P is detected as said characteristic signal.

20. A method according to claim 17, wherein a periodic sequence of the amplitude height values P, 0, P, -P, 0, -P with 0 being the smallest valid amplitude height value and P being any other valid amplitude height value is detected as said characteristic signal.

21. A method according to one of the claims 17 to 20, wherein for modem detection amplitude height values with a deviation of up to two levels from the amplitude height values required for detection are mapped to that amplitude height value.

22. (Amended) A method according to one of claims 1 to 4 wherein as a first step a modem detection is performed and the subsequent steps are only taken if a modem connection has been detected.

23. (Amended) A method according to one of claims 1 to 4 implemented in a network termination unit.

24. An apparatus adapted for the implementation of the methods according to one of the previous claims.

25. (Amended) An apparatus according to claim 42, wherein said means for storing a mapping comprise means for storing amplitude height values that replace said amplitude height values (P1,..., Pn) accordingly.

26. An apparatus according to claim 25, wherein said mapping is calculated by the multiplication of the predetermined amplitude height values with a factor (V).

27. (Amended) An apparatus according to claim 26, further comprising means for storage of the constellation of said signal (DS).

28. (Amended) An apparatus according to one of the claims 42, 26 and 27, wherein said means for storage of said constellation comprise at least six memory segments where each segment has enough capacity to assign one memory element

to at least those amplitude height values for which the discernable amplitude difference deviates less than 25% from the respectively previous amplitude height value.

29. (Amended) An apparatus according to claim 42 in a network termination unit.

30. (Amended) An apparatus according to claim 42, wherein the apparatus is activated at the start of a data communication between a transmission unit and said communication unit.

31. (Amended) An apparatus according to claim 30, wherein said communication unit is an analog PCM modem and said signal (DS) is generated by a digital modem.

32. (Amended) An apparatus according to claim 31, further comprising a control unit.

33. (Amended) An apparatus for detection of a modem connection from a signal (DS) comprising:

a) first means to check whether said signal (DS) comprises amplitude height values corresponding to a silence period from 70 to 80 ms;

b) second means to check whether said signal (DS) following said silence period is a predefined characteristic signal of a PCM modem; and

c) means for issuing a modem detect signal.

34. (Amended) An apparatus according to claim 33, further comprising means for storing at least 10 amplitude height values.

35. An apparatus according to claim 33 or 34, wherein a sequence of ten amplitude height values P1, ..., P10, followed by the same sequence with negated sign –P1, ..., -P10 is detected as said characteristic signal.

36. (Amended) An apparatus according to claim 33 or 34, wherein said second means is means for detecting a characteristic signal which is a periodic sequence of six amplitude height values comprising three constant positive values P and three constant negative values -P.

37. (Amended) An apparatus according to one fo the claims 33 to 36, wherein said second means is means for detecting a characteristic signal which is a periodic sequence of the amplitude height values P, 0, P, -P, 0, -P with 0 being the smallest valid amplitude height value and P being any other valid amplitude height value.

38. (Amended) An apparatus according claim 33 or 34, further comprising means for mapping amplitude height values with a deviation of up to two levels from the amplitude height values required for detection, to that amplitude height value.

39. An apparatus according to one of the claims 33 to 38, further comprising a modem detection unit, in particular one according to claims 30 to 34.

40. (Amended) The combination of a codec device and an apparatus according to claim 1 or 33.

41. (Amended) The combination of a network termination unit and an apparatus according to claim 1 or 33.

Add the following claim:

--42. An apparatus for transforming a signal (DS) on a four-wire line which comprises discrete amplitude height values (P1, ..., Pn) for conversion into a corresponding analog signal (AS) with amplitude height values (A1, ..., An) on a

two-wire line where said analog signal (AS) is intended for a data communication unit connectable to the two-wire line and where said data communication unit has a predefined capability for resolution of the amplitude of said analog signal (AS) and said method being determined by said amplitude height values (P1, ..., Pn) of signal DS on the four-wire line are each transformed by application of a transformation (T) where said transformation is determined in such a way that the number (n) of said amplitude height values (A1, ..., An) which said communication unit can discern in said analog signal (AS) matches a presetable criterion (K),

the apparatus comprising means for storing a mapping.--